

Claims

1. A fertiliser composition comprising from 95% to 1% by weight, based on the total weight of the fertiliser composition, of a phosphate fertiliser and from 5% to 99% by weight, based on the total weight of the fertiliser composition, of a phosphate binding
5 substance selected from the group consisting of red mud that has been at least partially reacted with a material comprising at least one of calcium ions and magnesium ions, red mud that has been at least partially neutralised by addition of acid, red mud that has been at least partially neutralised by treatment with carbon dioxide, and red mud that has been at least partially neutralised by addition of at least one mineral containing at least one of
10 calcium ions and magnesium ions, the phosphate binding substance having a reaction pH, when mixed with 5 times its weight of water, of less than 10.5.

2. A fertiliser composition according to claim 1 comprising from 50% to 25% by weight, based on the total weight of the fertiliser composition, of the phosphate fertiliser and from 50% to 75% by weight, based on the total weight of the fertiliser composition,
15 of the phosphate binding substance.

3. A fertiliser composition according to claim 1 wherein the phosphate binding substance is a red mud that has been at least partially neutralised by treatment with carbon dioxide.

4. A fertiliser composition according to claim 1 additionally comprising one or
20 more components selected from the group consisting of nitrogen containing compounds, potassium containing compounds and trace metals.

5. A fertiliser composition according to claim 1 in a form selected from the group consisting of powder, granules, pellets and tablets.

6. A fertiliser composition according to claim 1 wherein one of at least one
25 mineral containing at least one of calcium ions and magnesium ions is gypsum.

7. A treated red mud when used in a fertiliser composition according to claim 1.

8. A process for preparing a fertiliser composition, said process comprising homogeneously mixing a phosphate fertiliser and a phosphate binding substance, wherein the phosphate binding substance is selected from the group consisting of red mud that has
30 been at least partially reacted with a material comprising at least one of calcium ions and magnesium ions, red mud that has been at least partially neutralised by addition of acid, red mud that has been at least partially neutralised by treatment with carbon dioxide, and red mud that has been at least partially neutralised by addition of at least one mineral containing at least one of calcium ions and magnesium ions, the phosphate binding

substance having a reaction pH, when mixed with 5 times its weight of water, of less than 10.5.

9. A process according to claim 8 wherein the amount of phosphate fertiliser is from 95% to 1% by weight based on the total weight of the phosphate fertiliser and the amount of phosphate binding substance is from 5% to 99% by weight based on the total weight of the phosphate fertiliser.

10. A process according to claim 8 wherein the amount of phosphate fertiliser is from 50% to 25% by weight based on the total weight of the phosphate fertiliser and the amount of phosphate binding substance is from 50% to 75% by weight based on the total weight of the phosphate fertiliser.

11. A process according to claim 8 wherein the phosphate binding substance is a red mud that has been at least partially neutralised by treatment with carbon dioxide.

12. A process according to claim 8 additionally comprising the step of adding one or more components selected from the group consisting of nitrogen containing compounds, potassium containing compounds and trace metals.

13. A process according to claim 8 additionally comprising the step of crushing or grinding coarse particles to a particle size of less than 0.1 mm particle diameter.

14. A process according to claim 8 additionally comprising the step of pelletising the mixture.

15. A process according to claim 14 using an applied compression of at least about 50Mpa.

16. A fertiliser composition when made by the process of claim 8.

17. A method of fertilising soil comprising applying to the soil a fertilising amount of phosphate fertiliser and an amount of a phosphate binding substance wherein the amount of the phosphate fertiliser is from 95% to 1% by weight, based on the total weight of the phosphate fertiliser and the phosphate binding substance, and the amount of the phosphate binding substance is from 5% to 99% by weight, based on the total weight of the phosphate fertiliser and the phosphate binding substance, and wherein the phosphate binding substance is selected from the group consisting of red mud, that has been at least partially reacted with a material comprising at least one of calcium ions and magnesium ions, red mud that has been at least partially neutralised by addition of acid, red mud that has been at least partially neutralised by treatment with carbon dioxide, and red mud that has been at least partially neutralised by addition of at least one mineral containing at least one of calcium ions and magnesium ions, the phosphate binding

substance having a reaction pH, when mixed with 5 times its weight of water, of less than 10.5.

18. A method according to claim 17 wherein the amount of phosphate fertiliser is from 50% to 25% by weight based on the total weight of the phosphate fertiliser and the amount of phosphate binding substance is from 50% to 75% by weight based on the total weight of the phosphate fertiliser.

19. A method according to claim 17 wherein the phosphate binding substance is a red mud that has been at least partially neutralised by treatment with carbon dioxide.

20. A method of fertilising soil comprising applying to the soil a fertilising amount of a fertilising composition according to claim 1.

21. A fertiliser composition according to claim 1 when used for fertilising soil.